IN THE CLAIMS:

Please cancel claims 20 - 37 directed toward a non-elected invention, and amend claims 1 - 19 as follows:

1. (Once Amended) A method for detecting a threshold temperature in an integrated circuit comprising the steps of:

[generating a constant current source from a power supply;]

generating a voltage reference [from said constant current source wherein said voltage reference] that is substantially constant over a range of temperatures of said integrated circuit [and a range of power supply voltages];

receiving at least one programmable input that specifies a threshold temperature for said integrated circuit;

generating a sensing voltage wherein said sensing voltage amplitude exhibits a substantially linear relationship with said temperature of said integrated circuit;

generating a scale factor based on said programmable input;

scaling said sensing voltage based on said scale factor to generate a comparison voltage such that when said integrated circuit attains said threshold temperature said comparison voltage is substantially equal to said voltage reference;

comparing said reference voltage to said comparison voltage; and

generating a signal when said comparison voltage exceeds said ~~reference~~ reference voltage to indicate said integrated circuit temperature [surpassed] attained said threshold temperature.

2. (Once Amended) The method [for detecting a threshold temperature in an integrated circuit] as claimed in claim 1 further comprising the step of programming a threshold temperature by specifying said programmable input [a scale factor for scaling said sensing voltage].

3. (Once Amended) The method [for detecting a threshold temperature in an integrated circuit] as claimed in claim 2 wherein:

the step of generating a constant voltage reference comprises the step of generating a silicon bandgap voltage reference; and

the step of generating a sensing voltage comprises the step of generating a base to emitter voltage ($V_{be}$) from a bipolar transistor.

4. (Once Amended) The method [for detecting a threshold temperature in an integrated circuit] as claimed in claim 3 wherein the step of scaling said sensing voltage comprises the step of providing a plurality of resistive elements [resistors], wherein a first resistive element is coupled from the base to the collector of said bipolar transistor, and a second resistive element[, comprising at least one resistor,] is coupled from the base of said bipolar transistor to ground, wherein said first resistive element and said second resistive element generate a scale factor for scaling said sensing voltage.

5. (Once Amended) The method [for detecting a threshold temperature in an integrated circuit] as claimed in claim 4 wherein the step of programming a threshold temperature by specifying a scale factor comprises the steps of:

coupling a plurality of resistors in series to generate said second resistive element;

coupling, across each resistor in said second resistive element, a [metal oxide semiconductor field effect] transistor[s (MOSFETs) in parallel for each resistor comprising said second resistive element]; and

selectively biasing each transistor [said MOSFETs] so as to select a combination of said resistors in said second resistive element [so as ]to specify said scale factor for scaling said sensing voltage.

6. (Once Amended) The method [for detecting a threshold temperature in an integrated circuit] as claimed in claim [4] 5 wherein said resistors comprise a plurality of binary weighted resistors[, said at least one resistor comprising said second resistive element is binary weighted].

7. (Once Amended) The method [for detecting a threshold temperature in an integrated circuit] as claimed in claim 1 wherein said integrated circuit comprises a microprocessor.

8. (Once Amended) An apparatus for detecting a threshold temperature in an integrated circuit comprising:

[current source means for generating a constant current source;]

voltage reference means [coupled to said constant current source means] for generating a voltage reference [from said constant current source wherein said voltage reference] that is substantially constant over a range of temperatures of said integrated circuit;

at least one programmable input for receiving a threshold temperature for said integrated circuit;

temperature sensing means for generating a sensing voltage wherein said sensing voltage amplitude exhibits a substantially linear relationship with said temperature of said integrated circuit, said temperature sensing means including scaling means generating a scale factor based on said programmable input and for scaling said sensing voltage in accordance with said scale factor to generate a comparison voltage such that when said integrated circuit attains said threshold temperature said comparison voltage is substantially equal to said voltage reference; and

comparison means coupled to said temperature sensing means and said ~~voltage~~ reference means for comparing said reference ~~voltage~~ to said comparison voltage, and for generating a signal when said comparison voltage exceeds said reference voltage to indicate said integrated circuit temperature attained said threshold temperature.

9. (Once Amended) The apparatus [for detecting a threshold temperature in an integrated circuit] as claimed in claim 8 further comprising programming means for programming a threshold temperature by specifying said programmable input a scale factor for scaling said sensing voltage.

10. (Once Amended) The apparatus [for detecting a threshold temperature in an integrated circuit] as claimed in claim 9 wherein:

said voltage reference means generates a silicon bandgap voltage reference; and

said temperature sensing means comprises a bipolar transistor for generating a base to emitter voltage ($V_{be}$) for said sensing voltage.

11. (Once Amended) The apparatus [for detecting a threshold temperature in an integrated circuit] as claimed in claim 10 wherein said scaling means comprises a plurality of resistive elements [resistors], wherein a first resistive element is coupled from the base to the collector of said bipolar transistor, and a second resistive element[, comprising at least one resistor,] is coupled from the base of said bipolar transistor to ground, wherein said first resistive element and said second resistive element generate a scale factor for scaling said sensing voltage.

12. (Once Amended) The apparatus [for detecting a threshold temperature in an integrated circuit] as claimed in claim 11 wherein:

said second resistive element comprises at least one resistor;

said programming means comprises:

at least one [a plurality of metal oxide semiconductor field effect] transistor[s (MOSFETs)] coupled across each resistor in said second resistive element [in parallel with each resistor comprising said second resistive element]; and

biasing means for biasing each transistor [said MOSFETs] so as to select a combination of said resistors in said second resistive element to specify said scale factor for scaling said sensing voltage.

13. (Once Amended) The apparatus [for detecting a threshold temperature in an integrated circuit] as claimed in 11 wherein said resistors comprise a plurality of binary weighted resistors [at least one resistor comprising said second resistive element is binary weighted].

14. (Once Amended) The apparatus [for detecting a threshold temperature in an integrated circuit] as claimed in 8 wherein said integrated circuit comprises a microprocessor.

15. (Once Amended) An apparatus for detecting a threshold temperature in an integrated circuit comprising:

[a constant current source circuit;]

a silicon bandgap reference circuit [coupled to said constant current source circuit, said voltage reference circuit generating] that generates a silicon bandgap voltage reference[, from said constant current source,] wherein said silicon bandgap voltage reference is substantially constant over a range of temperatures of said integrated circuit;

a bipolar transistor wherein a base to emitter voltage ($V_{be}$) from said bipolar transistor generates a temperature sensing voltage of said integrated circuit[, said current source circuit being coupled to a collector of said bipolar transistor];

at least one programmable input that receives a threshold temperature for said integrated circuit;

a voltage divider circuit [comprising a scale factor] coupled to said bipolar transistor [for scaling] that scales said $V_{be}$ to generate a comparison voltage such that when said integrated circuit

attains said threshold temperature, said comparison voltage is substantially equal to said silicon bandgap voltage; and

a comparator coupled to said collector of said bipolar transistor and to said voltage reference circuit[, said comparator comparing] that compares said silicon bandgap voltage to said comparison voltage, and that generates [generating] a signal when said comparison voltage exceeds said silicon bandgap voltage to indicate said integrated circuit temperature attained said threshold temperature.

16. (Once Amended) The apparatus [for detecting a threshold temperature in an integrated circuit] as claimed in claim 15 wherein said voltage divider circuit comprises a plurality of resistive elements [resistors], wherein a first resistive element is coupled from the base to the collector of said bipolar transistor, and a second resistive element[, comprising at least one resistor,] is coupled from the base of said bipolar transistor to ground, wherein said first resistive element and said second resistive element generate [said] a scale factor for scaling said $V_{be}$.

17. (Once Amended) The apparatus [for detecting a threshold temperature in an integrated circuit] as claimed in claim 16 further comprising:

a plurality of resistors for said second resistive element;

a plurality of [metal oxide semiconductor field effect] transistors [(MOSFETs)] coupled in parallel with each resistor [comprising said second resistive element]; and

a plurality of programming voltages input to said transistors [MOSFETs] for biasing said transistors [MOSFETs] so as to select a combination of said resistors in said second resistive element to specify said scale factor for scaling said sensing voltage.

18. (Once Amended) The apparatus [for detecting a threshold temperature in an integrated circuit] as claimed in 16 wherein said resistors comprise a plurality of binary weighted resistors [at least one resistor comprising said second resistive element is binary weighted].

19. (Once Amended) The apparatus [for detecting a threshold temperature in an integrated circuit] as claimed in 15 wherein said integrated circuit comprises a microprocessor.

REMARKS

In the Office Action dated April 3, 1995, the Examiner rejected claims 5, 12 and 17 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner also rejected claims 1 - 19 under 35 U.S.C. § 103 as being unpatentable over Giordano et al, U.S. Patent 5,359,236, and Nelson, U.S. Patent 4,7898,819,

REJECTIONS UNDER 35 U.S.C. § 103: